



## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification<sup>4</sup> :</b>  <b>C11C 5/02</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 87/ 03004</b>  <b>(43) International Publication Date:</b> 21 May 1987 (21.05.87)
<b>(21) International Application Number:</b> PCT/SE86/00509 <b>(22) International Filing Date:</b> 6 November 1986 (06.11.86)  <b>(31) Priority Application Number:</b> 8505341-1 <b>(32) Priority Date:</b> 12 November 1985 (12.11.85) <b>(33) Priority Country:</b> SE  <b>(71) Applicant (for all designated States except US):</b> SVENSKA STEARINLJUS AB [SE/SE]; Örebrovägen 25b, S-691 52 Karlskoga (SE).  <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> OLSSON, Mats [SE/SE]; Råbäck 1330, S-690 10 Åtorp (SE). MAGNUSSON, Lennart [SE/SE]; Mineralvägen 8, S-691 45 Karlskoga (SE). NORDQUIST, Dan [SE/SE]; Säningsvägen 12b, S-691 36 Karlskoga (SE).		<b>(74) Agent:</b> FRIVALLI, Torsten; Skandinaviska patentbyrå, Box 6250, S-102 34 Stockholm (SE).  <b>(81) Designated States:</b> AT (European patent), BE (European patent), CH (European patent), DE (European patent), DK, FI, FR (European patent), GB (European patent), IT (European patent), LU (European patent), NL (European patent), NO, SE (European patent), US.  <b>Published</b> <i>With international search report.</i> <i>In English translation (filed in Swedish).</i>
<b>(54) Title:</b> STEARINE CANDLE AND A METHOD FOR PRODUCING THE SAME  <div data-bbox="592 1241 1075 1747" data-label="Image"> </div>		
<b>(57) Abstract</b>  <p>A stearine candle comprises a preferably square candle block (1, 2) provided with wick (3) and having secured to the sides thereof preferably transparent plastic films (4) or the like which are provided with images or advertising text and which are surrounded by a continuous layer of paraffin (8). Due to the transverse section of the candle block and the plastic films incorporated in the candle block it is achieved that continuous walls consisting of unmelted corner portions and plastic film with adhering stearine remain also when the candle is substantially burned out. The candle may also have a base (5) which can have a relief text (6) which may bear a layer of colour (7).</p>		

## STEARINE CANDLE AND A METHOD FOR PRODUCING THE SAME

The present invention refers to a stearine candle and a method for producing the same.

5 The stearine candles now on the market generally have the drawback that they change shape in an uncontrollable way when they are burned-out. In many cases such a deformation is acceptable and may under circumstances even produce desirable esthetical effects but particularly when candles of square or similar regular shape are concerned a deformation is not desired. It is even less acceptable when molten stearine breaks through  
10 a planar candle wall. One object of the invention has therefore been to provide a candle which remains substantially intact during the entire burning time.

Another object has been to create a candle which offers an extra effect in the shape of an illuminated image or text surface. To accomplish these  
15 and further objects the invention has the characteristics stated in the claims.

The accompanying drawing shows an exemplifying embodiment of the invention where

20 Fig. 1 is a perspective view of a stearine candle according to the invention whereas

Fig. 2 is a section through the candle illustrated in fig. 1 and

Fig. 3 schematically shows a stage in the manufacturing of the candle according to fig. 1 and 2 and

Fig. 4 is a top view of a partly burned-out candle.

25 The stearine candle shown in fig. 1 comprises a main portion 1, which has a square cross section and which at the upper end thereof continues in a substantially pyramid shaped upper end portion 2, through the central part of which the wick 3 extends. At the outer surface of the main portion 1 of the candle there are provided covering parts 4 for a purpose to be described and the candle is terminated downwards by a base 5  
30 which has relief portions 6 preferably forming a text for instance the

name of an enterprise. Since these reliefs consist of stearine material the outer portions thereof are preferably covered by paint 7 for providing a suitable contrast to the rest of the candle.

5 As appears from fig. 2 at least the main part of the candle is additionally covered by a thin layer 8 of paraffin or the like. In practice the entire candle is dipped in so called dip paraffin before the base is moulded.

10 The cover parts 4, which may consist of transparent films which only need to have a thickness of some hundreds of a mm, serve a double purpose since they preferably have a text which for instance can point out special services of an enterprise or one or several images or the like and further serve to maintain the shape of the candle, which will appear from the following description. As a consequence of these properties the cover parts will further give the candle still another unique quality, i.e. the capability of showing one or several illuminated  
15 advertising texts or images. When the top 2 of the candle has been burned-out and the flame as a consequence thereof is located inside the cover parts 4 these latter will be illuminated by the flame thus giving said effect.

20 Also the base 5 has an important influence as regards the function of the candle. It provides a text surface which deviates from the text surface constituted by the cover parts 4 and further it prevents the candle from collapsing in spite of the lacking cover parts in the lower part of the candle.

25 These properties for the candle of the invention will now be explained more in detail with reference to fig. 4.

In this figure the numeral 9 designates the so called candle cup, i.e. the stearine material which is in a thinly fluid condition. This candle cup has in a top view a substantially circular shape which means that  
30 it reaches the sides of the square candle at the centre thereof. The stearine mass in the corners of the candle is then still substantially uninfluenced and the cover parts 4, which have a considerably higher melting point than the stearine prevent the candle cup from breaking

through the candle wall.

It has also been proved that a plastic sheet 4 although very thin has the capability of forming together with stearine mass adhering to the plastic sheet a wall portion 10 which together with the intact corner portions 11a, 11b generate an intact but of course in part of its extension relatively thin continuous wall. It is obvious that a text or image upon said film or sheet will be visible in a very attractive manner due to the flame inside the same.

When the flame and consequently also the candle cup 9 has passed the main part 1 and has begun to melt itself down into the base 5 the thicker wall thickness of this one and the fact that it has been moulded from a stearine compound having a higher melting point than the rest of the candle prevents the candle cup from breaking through the candle wall also in this part of the candle which means that the candle will maintain its outer shape.

In order to make the candle self-extinguishing the wick according to the invention is cut about 5 mm from the bottom of the candle. When moulding the base some part of the stearine compound with higher melting point is allowed to melt into the bottom of the "basic" candle which reduces the flame.

According to the invention the candle as now described may be produced in the following manner:

In a first step the entire candle with the exception of the base 5 is produced in a moulding procedure. As a result a blank 12 is obtained which has the shape shown in fig. 3, i.e. having substantially the same height as the completed candle but lacking the base. Transparent plastic sheets 4 provided with a desired text or image are then secured to the outer sides of the main part 1.

To this end the plastic sheets 4 may have an adhesive layer.

In order to still further fix the sheets 4 the candle blank so obtained

is dipped in melted paraffin so that the thin paraffin layer as mentioned above and which surrounds at least the main part 1 is generated. The candle is then according to fig. 3 placed in a mould 13 for moulding the base to the rest of the candle.

- 5 In the illustrated example where the base is to have a text in relief the mould may entirely or in part be made from a material with rubber-like properties such as silicone rubber or it may according to fig.3 have movable tool blocks 14a, 14b provided with recesses 15 for the intended text.
- 10 The blank 12 has as appears from fig. 2 and 3 by moulding or planing in the portion thereof where the base is to be located been provided with a recess 16 which extends around the candle and which in combination with a corresponding recess 17 in the mould or the blocks constitutes the cavity into which the stearine compound which is to form the base 5
- 15 is poured.

- As appears from fig. 2 the stearine compound from which the base is made also forms the bottom of the candle and thus contributes to the extinguishing effect just mentioned. Since an air pocket is generally generated during moulding the candle part 1 and this air pocket is filled when the
- 20 base is moulded the bottom layer will as shown not be of equal thickness.

By admitting the raised relief portions 6 to pass an inking feed roller or the like the coloured layer 7 is obtained and manufacturing of the candle is then completed.

- In order to achieve the objects referred to it is necessary that the
- 25 candle block has a transverse section which deviates from the circular shape in such a manner that unmelted portions similar to the portions 11a, 11b in fig. 4 are generated and that said portions are such that they in fact will form columns which in combination with the covering parts 4 with stearine adhering thereto will form substantially rigid and intact walls. As an alternative to the square transverse section
- 30 illustrated in the drawing also other polygon shapes or other shapes having the characteristics referred to may be used.

The covering parts 4 may of course be contiguous in which case the sheet may be in the shape of a flexible tube which may be forced on the candle block and they can of course consist of plates of plastic or some other suitable material. The covering parts may also be surrounded by a layer of coloured stearine or the like.

5

## CLAIMS.

1. Stearine candle, c h a r a c t e r i z e d in that it comprises one or several preferably transparent covering parts (4) of a material with a melting point higher than that for stearine, preferably plastic, which substantially cover the outer side of the candle at least in the upper portion (1) thereof and that the candle further has a square section which deviates so much from the circular shape that the so called candle cup (9) which is generated when the candle burns is prevented from breaking through the barrier formed on one hand by remaining column shaped portions (11a,11b) of unmelted stearine and on the other hand by the walls (10) which are formed by said covering parts (4) with stearine layers adhering thereto and which connect said portions with each other.
2. Stearine candle according to claim 1, c h a r a c t e r i z e d in that it comprises a base (5) which is made from a stearine compound with higher melting point than the stearine compound from which the other part of the candle is made and that the base also includes a portion which forms the bottom of the candle.
3. Stearine candle according to claims 1-2, c h a r a c t e r i z e d in that the candle has a wick (3) which ends somewhat above the bottom surface of the candle which is made from said stearine compound with higher melting point.
4. Stearine candle according to claims 1-2, c h a r a c t e r i z e d in that the candle comprises a paraffin layer (8) covering the main portion (1-3) thereof.
5. Method for producing a stearine candle according to claim 1, c h a r a c t e r i z e d in that the main portion (1-3) of the candle is produced by a moulding procedure, that transparent covering parts (4) preferably in the shape of one or several plastic films are then secured to the outer sides of the main portion and that at least the main portion with covering parts applied thereto is dipped into molten paraffin or the like for generating a continuous layer of paraffin or the like.

6. Method for producing a stearine candle according to claims 1-2, characterized in that the main portion (1-3) made by moulding in the lower portion thereof is provided with a recess (16) which extends around the candle and that the blank (12) thus obtained is placed  
5 in a mould (13) which has a cavity (17) which in combination with the recess (16) in the stearine blank forms a mold cavity for a base (15) and that a stearine compound having a higher melting point than the stearine compound from which the rest of the candle is made is poured into said mold cavity.
- 10 7. Method according to claim 6, characterized in that the mould (13) is so designed that contemporary with the forming of the base (5) a layer forming the bottom of the candle is generated and that the candle blank has been provided with a wick (3) which terminates somewhat above said layer forming the bottom.
- 15 8. Method according to claim 7, characterized in that the mould comprises elastical or displaceable parts (14a,14b) provided with recesses (15) which when the base is moulded are filled with stearine compound and which after moulding are turned off or displaced such that the relief portions (6) obtained at the moulding can leave the mould.



Fig. 1

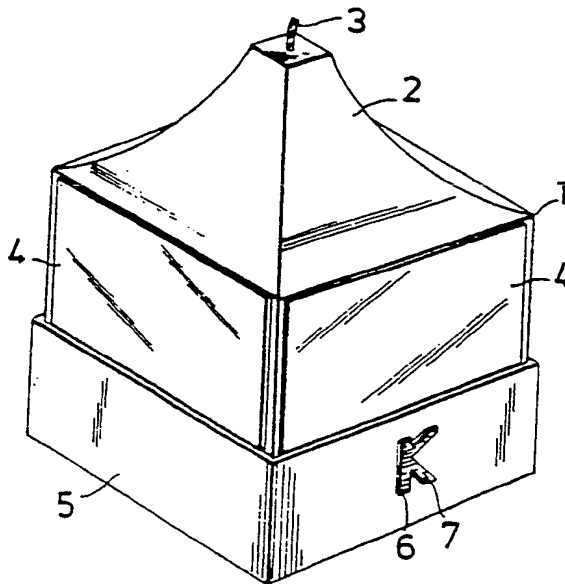


Fig. 2

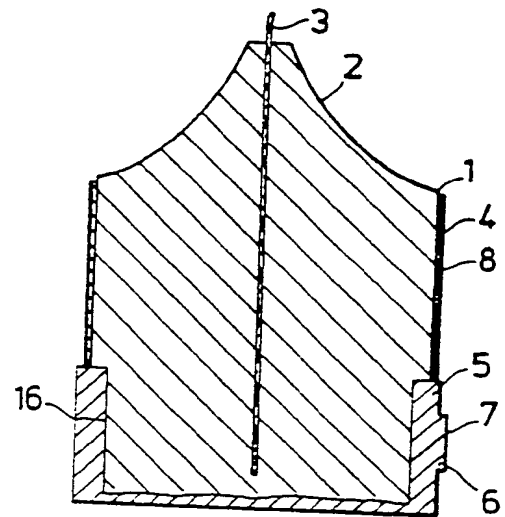


Fig. 3

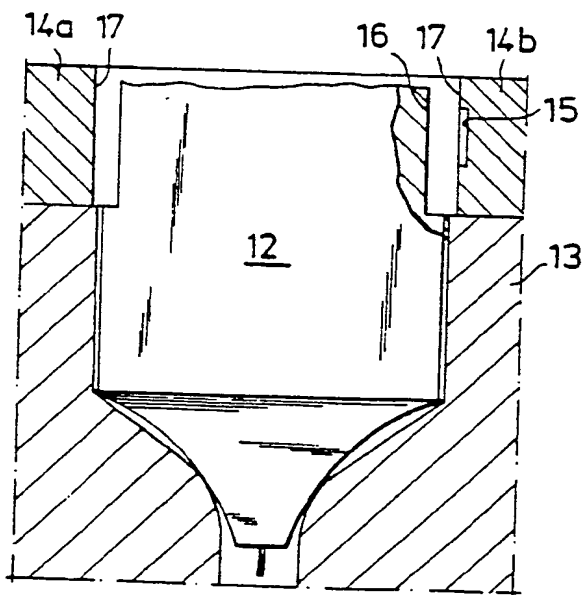
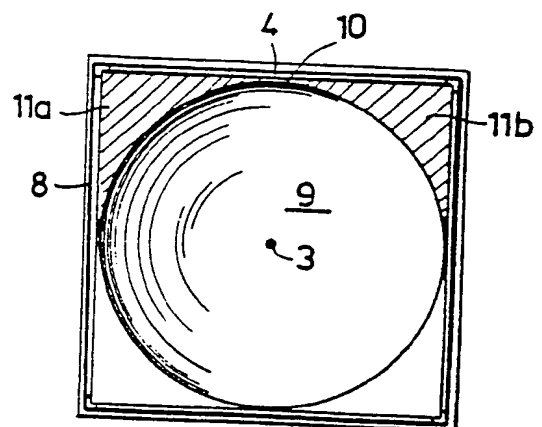
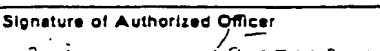


Fig. 4



## INTERNATIONAL SEARCH REPORT

International Application No PCT/SE86/00509

<b>I. CLASSIFICATION OF SUBJECT MATTER</b> (if several classification symbols apply, indicate all) *		
According to International Patent Classification (IPC) or to both National Classification and IPC		
C 11 C 5/02		
<b>II. FIELDS SEARCHED</b>		
Minimum Documentation Searched ?		
Classification System	Classification Symbols	
IPC 4 US C1	C 11 C 5/00 <u>431</u> :288	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched *		
SE, NO, DK, FI classes as above		
<b>III. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of Document, ** with Indication, where appropriate, of the relevant passages **	Relevant to Claim No. **
X	DE, C, 822 866 (OTTO KLARHACK) 18 October 1951	1-8
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p>* Special categories of cited documents: 10</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 65%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"Z" document member of the same patent family</p> </div> </div>		
<b>IV. CERTIFICATION</b>		
Date of the Actual Completion of the International Search 1987-02-02	Date of Mailing of this International Search Report 1987-02-05	
International Searching Authority Swedish Patent Office	Signature of Authorized Officer  Dagmar Jansson	

Form PCT/ISA/210 (second sheet) (January 1985)

1. F